

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Takahiro KISHIOKA et al.

Group Art Unit: 1752

Application No.: 10/520,461

Examiner: A. WALKE

Filed: January 7, 2005

Docket No.: 122364

For: COMPOSITION FOR FORMING ANTI-REFLECTIVE COATING

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the April 6, 2007 Office Action, reconsideration of the rejection is respectfully requested in light of the following remarks.

Claims 1, 4-8, 10 and 11 are pending in this application. The Office Action rejects claims 1, 4-8, 10 and 11 under 35 U.S.C. §103(a) over Kang in view of Mizutani or either Bonk reference. Applicants respectfully traverse the rejection.

I. Rejections under 35 U.S.C. §103(a)

The Office Action rejects claims 1, 4-8, 10 and 11 under 35 U.S.C. §103(a) over Kang in view of Mizutani or either Bonk reference. The Office Action asserts that Kang discloses each claimed feature, except for the instantly claimed compound, which is allegedly taught by Mizutani or either Bonk. Applicants respectfully traverse the rejection.

Kang is directed toward a radiation absorbing polymer, wherein crosslinking agents are added for increased crosslinking density. Kang contains a urea crosslinking component in an amount of only 16.4 weight percent of the solid content. The composition disclosed in

Kang corresponds to Comparative Example 1 of the present specification. Comparative Example 1 is an antireflective coating forming composition comprising two grams of a novalac resin containing light absorbing group (anthrocene) and .53 grams of hexamethoxymethylmelamine that exhibits a dry etching rate selection ratio to photoresist of only .88. Kang nowhere discloses a dry etching rate of 1.4 to 2.7.

Mizutani discloses a resist composition for an electron beam, UEV or x-ray containing an acid generator. In Mizutani, the crosslinking agent (i.e., alkyl methylated glycoluril) is present in an amount of 13.7% weight of the solid content. See Mizutani, Examples 201 and 217. Mizutani thus corresponds to Comparative Example 2 of the present specification, which exhibits a dry etching rate selection ratio to photoresist of only 1.3. Nowhere does not Mizutani suggest a relation to an antireflective coating forming composition; nor does Mizutani disclose a dry etching rate selection ratio of 1.4 to 2.7.

Both Bonk references fail to disclose an antireflective coating for a semiconductor as claimed. Moreover, there is no indication that either Bonk reference discloses, inherently or expressly, the improved dry etching rate selection ratio of 1.4 to 2.7.

In contrast, instant claim 1 recites "compound is contained in an amount of 50% mass percent or more." Such a mass percentage of the instant claimed compound results in superior dry etching rate selection ratio to photoresist of 1.4 to 2.7. See Example 1 to 9 of the specification, as filed. Thus, none of Kang, Mizutani or Bonk provides sufficient dry etching selection ratio as compared with exemplary embodiments of the claimed invention. Further, neither Mizutani nor Kang use urea components as cross-linking agents for polymers, such as is done in the claimed invention. Thus, it would not have been obvious to have combined Kang, Mizutani and/or Bonk, because having combined these references would not have obtained the claimed invention.

For at least the foregoing reasons, instant claims 1, 4-8, 10 and 11 would not have been obvious in view of Kang, Mizutani and Bonk. Reconsideration and withdrawal of the rejection are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. O'Neill
Registration No. 27,075

Ryan C. Cady
Registration No. 56,762

JAO:RCC/amw

Date: August 3, 2007

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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